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Exploring visual communication and competencies through interaction with images in social media

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ABSTRACT

The students of today are surrounded by visual information, online as well as offline. This study examines visual communication and active competencies when interacting with longer-lasting images in social media. Focusing on one focus student in upper secondary school in Finland, the ethnographic data consist of 41 images that the focus student interacted with, by liking or sharing, on Tumblr and Instagram during school time. The data are collected during 3–5 consecutive days once a year during the focus students three years in upper secondary school. Three interviews function as secondary data.

Drawing on visual ethnography and different levels of messages in visual material, the analysis shows that the focus student interacts with images in a way that communicates the kind of persona the focus student wishes to convey in social media. Thus, the findings indicate that four competencies are active while interacting with images in social media: visual competency; technical competency; knowledge of social norms; and knowledge of self. Therefore, we claim that there are active competencies when interacting with images on social media and that this should be considered in the educational discourse on youth as media users.

1. Introduction

“Our lives are filled with visual information. Some visuals are obvious – such as a Calvin Klein magazine advertisement, where the visual dominates our senses. Other visuals are so common that we take them for granted – the octagonal shape and red background of a stop sign, for example, where the shape communicates importance and the red color communicates danger.”

(Fahmy, Bock, and Wanta, 2014, p. 1)

As stated by Fahmy et al. (2014) in the quote above, we are surrounded by different types of visual information in our everyday lives, and the educational context is no exception. Technology enables us to include new forms of visual expression in our schools and learning environments. It is seldom the technical aspect of digital culture that fascinate the users at first, more often it is a desire to communicate or to be entertained (Drotner, 2008). The drive to communicate can sometimes, as in this study, manifest itself in interaction with and through images.

When using media like blogs or games, the focus is on something of interest, a problem to be solved or the process itself. The process of using digital leisure time media is often problem-based and the user's own interests clearly define what devices, applications and tools are used. Not all of the activities the user undertakes are necessarily creative or innovative yet most are problem-

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based by nature, often without the user knowing the correct way to achieve one's goal (Drotner, 2008). In an educational setting, research on technology tends to focus on different digital tools and how they might be used in varying forms of education. There is however little focus on the learning strategies used and the learning processes that take place in virtual learning environments, especially in informal learning environments (Fors, 2015).

The aim of this study is to better understand the competencies that are active while interacting with longer-lasting images in social media, i.e. images which have no technical access deadline.¹ There are two research questions, where the first is “What competencies are active while interacting with the longer-lasting images in this study”? The second research question is: “What does the focus student Maria communicate when interacting with the longer-lasting images in this study”? In order to answer the research questions and thereby reaching an answer to the aim of the study, an inductive research process with visual ethnographic analysis was conducted. The analysis focuses on 41 images that the focus student interacted with was based on Barthes theory on messages in images (1982) informed by visual ethnography (Pink, 2011, 2013). The data consists of video recordings as well as screen recordings in a school context and is gathered within the ethnographic research project *Textmöten* [Text Meetings] during 2015–2016 (see Figs. 1–5). As background for the analysis several interviews were conducted with the focus student; an individual interview as well as group interviews.

2. Theoretical framework

2.1. A new generation

The new generation, youth born in the later 1980s and forward, is the first for whom the Internet has been present all their lives and there have been many ways to describe this group (Herring, 2008; Prensky, 2006 e.g.). Although many attempts to better understand this new generation have been made in research, Herring (2008) points out that very little research has been done on how adults influence the digital landscape this new generation faces. Herring suggests a shift in focus from gaps in skills in regard to technologies to rather focusing on the different ways these generations experience technology.

There are multiple ways of trying to capture and define the skills or competencies students will need in the future. Kereluik, Mishra, Fahnoe, and Terry (2013) have examined 15 different sources “that describe the kinds of knowledge that researchers state are integral and important for success in the 21st century” (p. 1) in order to better understand what we refer to when we are discussing 21st century skills or competencies. They identified three main fields of knowledge that researchers and educators state are a crucial part of 21st century learning: *Foundational Knowledge (to Know)*, *Meta Knowledge (to Act)* and *Humanistic knowledge (to Value)* (Kereluik et al., 2013).

Adult audiences tend to have a normative view on the process and product of youngsters exploring different forms of creativity in digital media (Drotner, 2008; Stern, 2008). This results in either exoticizing this generation as innovative and tech savvy or by underestimating the cultural quality of their products. According to Herring (2008) there is currently a discrepancy between youth user experience of new media and how adults perceive this experience; resulting in three adult discourses of the new generation. The first discourse, called Media Production and Advertisement, is youth as capable of making their own decisions, for an example in regard to marketing, although the products are designed by adults and may be specifically targeted for youth consumption. The second discourse, called Media Commentary, is youth as possible victims of all the horrors that might be found online, from new forms of language use such as Netspeak to predators and pornography. The third discourse, called Media Research, is mainly created by institutions such as academia where this new generation tends to be exoticized and their habits and skills tend to be exaggerated. Herring (2008) advocates awareness of these discourses when conducting research on youth and technology.

Whether it is to celebrate the ingenuity of youngsters using digital media or to stress their vulnerability online, the focus of the discussion is often on what kind of content youth create. Therefore, Stern (2008) stress the importance of asking why; in order to better understand the motivation behind youngsters' activities online. In order to appreciate the importance of personalized digital spaces have for youngsters, there is a need to stop labeling their experiences by adult standards and remember that these are one of few forums where the students' voices can be heard. When discussing this new generation, the actual voices of that generation is seldom heard. If the youngsters' opinions have been heard, it is usually represented by quotes used in media or research that have been chosen by adults (Herring, 2008). It is indeed problematic to raise questions about the ways adults and youth view technology without mediating the answers through an adult perspective. This paper is an additional example of research conducted by adults in order to better understand the youth of today where all examples are chosen by the authors. However, there has been an effort to make the focus student a participant of the knowledge presented in this paper, see section 3.1 and 3.3 (Herring, 2008).

2.2. Youth online

The Internet is accepted as a public space. In regard to online versus offline public spaces, there are according to Boyd (2008) four aspects that separate unmediated publics from networked publics. The first factor is persistence in networked publics, for example in

¹ In the data, there were four different platforms of social media where Maria interacts with images: Snapchat, Facebook, Instagram and Tumblr. At the time of the data collection (2015–2016), only Snapchat offered visual communication with a technical access deadline; in other words, images that are only visible a specific time. Functions such as “My story” on Facebook or Instagram are thereby not present in the data. For more information on the selection of the images used in the paper, see Section 3.



Fig. 1. Left. The focus student Maria likes an image on Instagram, screenshot from the material from year two (autumn 2015).

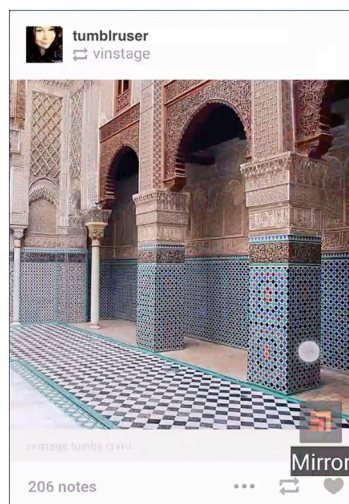


Fig. 2. Right. The focus student Maria shares an image on Tumblr, screenshot from the material from year one (spring 2015).

the form of speech that can be recorded and therefore offers asynchronous communication. The second is searchability, where digital tools offer different ways to search for and find different types of expressions. Replicability is the third factor that separates networked publics from unmediated ones: all expressions can be copied an unlimited amount of times until the original is unknown. The fourth and final factor is an invisible audience. Although the tools to control the intended audience are constantly being evolved, there is no ultimate certainty that what we express cannot reach an unintended audience. This is specifically problematic in addition to the three other factors, since an expression can be recorded, copied and searched for.

Grimes and Fields (2015) note that websites for media creation for children tend to overlook the importance of sharing in participatory culture. When youngsters create online, it is not only the actual audience that should be taken into account since the intended audience is equally important (Boyd, 2014). When interacting on social media, teenagers do what journalists or politicians need to do: they imagine the audience they will reach with the specific entry. If at least part of the audience is unknown it is unproductive to think of all the possible interpretations of the specific entry, thereby it is more fruitful to imagine the audience. When posting an entry, teenagers address the intended audience and try to create content that is understandable for this specific group. Further, teenagers tend to imagine that the audience is their *friends* or *followers* to whom they have given access to their profile. However, not all profiles are closed so that no unintended audience will be able to take part of a specific entry. To make things even more complex, just because a person is in the intended audience it does not automatically mean that he or she will actually see the entry or in what way that person will interpret it. When someone has to address different groups of intended audiences or groups from different social contexts at the same time, there might occur something that is referred to by Boyd (2014, p. 31) as a *collapsed context*. Teenagers often struggle with collapsed contexts when they interact through social media, if they for example, post an entry intended for their friends but is witnessed by their parents. Teenagers stress that their families should respect their privacy online and

be able to understand when an entry is not intended for them (Boyd, 2014).

2.3. Youth online and identities

In interaction with others, the individual gives away information about himself or herself. By interpreting interaction, the person whom we are interacting with tries to understand us in order for communication to work. The individual in question might wish to control information in order to create a favorable image of oneself (Goffman, 1959). Identity is a complex term than can be defined in several ways (Buckingham, 2008). In general, there are two ways to create identities online, either they have a clear connection to one's offline identities or the identities tend to have more of a fictional nature. Even though the identities created online might be clearly based on the offline identities and connected to persons they are offline, not all information is necessarily correct. To give information that might be seen as incorrect can be seen as a way to express humor or to limit unwanted attention. It appears to be more common to use nonfictional identities in social media sites than in virtual worlds such as role-playing sites or multiplayer games. In social media, teenagers tend to portray themselves and interact with people based on their physical setting. (Boyd, 2014.) Turkle (1997) was fascinated by the way identities were created online and she “extensively considered both the therapeutic and the deceptive potential of mediated identity work” (Boyd, 2014, p. 36).

Although a person might present one identity in social media and another in an online game, it does not necessarily mean that he or she tries to be two different persons. Different sites have different audiences, with different expectations and norms that apply to the participants. A teenager with an understanding of the norms behind different sites of social media might choose to display a certain interest of theirs in whatever site it feels the most appropriate and where there is a possibility to reach others with that interest. A specific group can create a new context with new expectations and norms that apply when the participants of the group use the site (Boyd, 2014). For an example, even though they are often accused for being forums for narcissism, selfies can according to Paul Frosh (2015) function as tools for personal reflexivity.

Willett (2008) focuses on how consumer cultures affect girls while expressing themselves online. Social media can be considered a platform for expressing oneself and possibly play with different identities, but these kinds of sites often include references to consumer culture as well. Willett (2008, p. 57) points out that research on gender and identity in relation to consumer culture is highly relevant since “girls in particular operate in an arena in which the consumption and production of the self are crucial aspects of becoming a woman”. Gender is also an important part of one's identity and if one considers gender as more of a process rather than something unchangeable, consumer culture and material objects become a part of the gender identity.

In her research, Willett (2008) stresses the importance of a nuanced discussion about how teenagers create identities online. Although the teenagers can be perceived as active thinkers who make their own decisions, there are also structures that affect these kinds of activities. Teenagers are often a target group for marketing and advertisements for online environments are considered more effective than television advertising.

3. Methodology

The design of the data collection was ethnographic and the data was analyzed from a perspective of visual ethnography. Visual material has the potential to access the respondents' voices and contexts in a different way than traditional forms of ethnography can offer (Barley & Russell, 2018). Although visual material in ethnography in itself is nothing new, it is traditionally viewed as a supplementary aid to the written text (Pole & Morrison, 2003). In this study, the interaction with the visual material is the primary form of data and the analysis is therefore informed by visual ethnography. The images are the foreground and the interviews are the background of this study, where both layers of the image are needed in order to fully comprehend the complexity of the research material.

When analyzing communication through images, there were alternative routes for us to take; such as Rose (2016) analysis of critical sites or multimodal analysis as argued by Kress and van Leeuwen (2006). For several reasons, we have decided to use Barthes (1982) concept of messages. In relation to defining visual ethnography, Pink (2013, p. 17) stresses a wish to “distinguish a visual ethnography approach more sharply from the semiotic approaches to text that often inform cultural studies analysis”. Although Kress and van Leeuwen (2006) focus on visual communication, their perspective is a semiotic one whereas the focus here is on visual culture (Mitchell, 2002, 2005) although the term could be considered problematic, see Becker (2004). Furthermore, although Kress and van Leeuwen (2006) have developed their theories on visual communication based on Barthes' (1982) theories on the rhetoric of the image, their interpretation of his texts is in some instances rather narrow. They state that Barthes “argued that the meaning of images (and of other semiotic codes, like dress, food, etc.) is always related to and, in a sense, dependent on, verbal text. By themselves, images are, he thought, too ‘polysemous’, too open to a variety on possible meanings” (Kress & van Leeuwen, 2006, p. 18). However, we argue that Barthes (1982, p. 39) is rather describing the current situation of the society rather than an ideal view of the relation between image and text. For these reasons, we base this analysis on Barthes (1982) theories but acknowledge the value of Kress and van Leeuwen (2006) semiotic perspective by using their vocabulary to clarify our analysis, see the affordance of colors in Section 4.2.

The data consisted of video recordings of seven students during their school day, during lessons as well as breaks, at the same time as there was a recording of their mobile phones. The application that allowed the mobile phones to be recorded was student controlled and the students were therefore in control of what material was recorded. During a total of 18 days the data was collected within an ethnographic research collaboration (for other papers based on the same data, see Olin-Scheller, Sahlström & Tanner, this issue; Sahlström, Tanner & Valasmo, this issue; Juvonen, Tanner, Olin-Scheller, Tainio & Slotte, this issue; Paakkari & Valasmo, this

issue and Rusk, this issue) between the spring of 2015 to the autumn of 2016 at two different upper secondary schools with a total of seven students. The participating students were chosen within the group of students expressing an interest to be part of the study, following an initial visit to the project schools. In addition to the video recordings as well as the recording of the mobile phones there were interviews made with five of the seven students. During the interviews, the students were shown excerpts of data to facilitate a discussion of their point of view on the material. These video-facilitated interviews enabled a deeper discussion of the mobile phone use in school, and provided the researchers with a substantially richer understanding of the recorded material. In comparison to the difficulties connected with ethnographies solely based on the Internet (Beaulieu, 2007; Shumar & Madison, 2013) or netnography (Kozinets, 2015), where the researchers approach the data from their own device and context, this methodological approach offers an emic understanding of the context the data was collected in, offline as well as online.

As a first impression of the data, it appeared that the students' relation to the visual material was fleeting and without reflection on the esthetics of the images. Images used as communication through apps like Snapchat tends to be spontaneous and volatile, and therefore little effort and thought appeared to be put in the esthetics of the image. Although creating images might appear to be a fleeting activity in the data, it turned out that there was a more long-term approach to images as well: when interacting with lasting images someone else had originally created and posted online. To avoid a comparison of the students' different styles to engage with images and since the aim of this study was to further understand what competencies student might explore while interacting with images of a long-lasting character, the data used in this study only consist from material of one student. Throughout the data collection phase and the group interviews, it became apparent that the focus student called Maria (pseudonym) had the most explicit interest in and long-term engagement with images on social media. Therefore, she was chosen as the focus student of this study.

3.1. Ethnography

There are variations in the implementation of ethnography yet there are some traits that all forms of successful ethnographic studies entail: a focus on the insider's perspective on a specific event or setting and an awareness for the complex social context surrounding the event or setting (Pole & Morrison, 2003). Ethnography as a methodology is evolving and contemporary ethnographies show that technology can offer new ways to comprehend online contexts. However, as pointed out by Beaulieu (2007) and Shumar and Madison (2013), doing ethnography on the Internet includes new demands on the researcher. The definition of fieldwork becomes blurry when the field is online and the researchers have access to it from their own devices. Fieldwork is no longer necessarily physically traveling to the context one wishes to explore but a switching of roles. Further, there is a need for new practices of reaching an emic perspective without necessarily having face to face interaction access to/with the participants.

The original data include video recordings from a classroom context as well as breaks where Maria interacts with the image as well as a screen recording of her doing so. Although these images were chosen based upon the interactions that were visible in the screen recording, in this study we focus on the images rather than on the screen recording. However, the screen recordings as well as the video recordings function as contextual information for the researchers' analysis. All images in this material were interacted within a school context.

In ethnography, there is often a combination of multiple forms of data collection, yet primarily with a focus on first hand experiences of the context collected over a fairly lengthy time in a relevant setting, and frequently combined with interviews (Hammersley, 2006). However, defining ethnography based solely on the extended time period spend doing fieldwork can be misleading since the quality is "at least as important as quantity or duration of the process" (White, Drew & Hay, 2009, p. 22). The researcher's immersion into the context is crucial and the time needed for fieldwork is connected to the research topic and whether or not there is a need for the researcher to capture a full cycle to grasp the context (Parker-Jenkins, 2018).

The data consisted of the images as well as three interviews; two group interviews (spring and autumn of 2015) with three focus students and several researchers present, and one individual interview (autumn of 2016) with only one researcher present. All three interviews were filmed and later transcribed. The quotes used in this paper have been translated to English. These quotes have then been sent to Maria and she has agreed that they match her initial statement.

3.2. Visual ethnography

Seeing is not simply a biological ability, but visibility is affected by cultural practices (Becker, 2004). The three basic forms of doing visual ethnography are through images (mainly photographs), through video and through the web. (Pink, 2013). In a sense, all three are present in this study since the interaction with images through the web was recorded as video, yet it is the images that function as the primary data in this study. With a visual approach to ethnography, the researcher needs to balance the new perspective while still embracing the core essence of ethnography (Barley & Russell, 2018). Emphasis in visual ethnography should be at representing the material in a way that is as true to the respondent as possible (Pink, 2013). Barley and Russell (2018) stress the importance of using the visual material as a starting point for a discussion with the respondents and thereby accessing an emic perspective. The context that the respondent lives in, the context where and when the data was gathered and the context that the researcher is part of, all affect the data in itself and the understanding of the data. The researcher should be aware of the influences that affect him or herself and aspire to making the respondent's voice heard at all times. (Pink, 2013).

In order to understand student interaction with longer-lasting images, there is a need for in depth analysis beyond a descriptive level of all the visual elements on the mobile screens of the focus students. In order to reach the aim of this paper, there was a need to separate the images the focus student interacts with from all the images that pass by in her feed. The researchers of this paper argue that we are better prepared to answer the research questions of communication through longer-lasting images and the competencies

required in doing so, by analyzing the images that the focus student interacted with, and in addition to the focused visual material, by interviewing the focus student herself.

Photographs are present on several levels in this study: as the images as the focus student interacts with, but also as a form of data through the video recordings. In an attempt to capture the essence of the photograph, Barthes (1981) noted that photographs differ from all other forms of expression in one regard: the irrefutable fact that the photographer was there. The object in a photograph is not a memory, nor a fantasy, and it is representing the actual time and place where the photograph was taken. Frosh (2015) point out that the selfie takes this into another level where the photographer simultaneously function as the object being documented at the same time as he or she is taking the photo.

A photograph is not an objective copy of reality, but rather a subjectively captured section of reality. Yet however subjective the photograph is, the photographer was indeed there to take the picture or as Barthes phrases it: “Every photograph is a certificate of presence” (Barthes, 1981, p. 85). Davis (1992), as referred to by Pink (2013), views Barthes (1981) statement about the photographer being present when the picture is taken in regard to ethnography. The ethnographer tends to use photographs in academic texts in order to point out that he or she was indeed there and has the authority to describe the situation as someone who has firsthand experience. Images can have a different function in research than as a mean to insure one's credibility. In visual ethnography, visual material such as photographs, function as primary data. Visual ethnographers do not consider visual materials *worthier* but rather *as worthy* as other forms of research material.

In the data, there were four different platforms of social media where Maria interacts with images: Snapchat, Facebook, Instagram and Tumblr. Since the images on Snapchat are fleeting and only last a short time, they were excluded from this study. From an ethical point of view, due to privacy settings the images shared on Snapchat and Facebook would not have been accessible to the researchers if it was not for the mirroring of the mobile phones. Further, the intention behind sharing or interacting with an image in a contained environment is different to that of an open environment where anyone can witness the interaction. Since Maria had an open profile on Tumblr as well as Instagram, the images she interacted with are open to anyone who knows her information. Through accessing these with the student's permission, although the images are not analyzed as part of this study, it is possible to state that images used in this study are representative for the content on her profiles in general. The forms of interaction that were recorded in the data was *liking* an image in both platforms and *sharing* an image on Tumblr. However, these forms of interaction do not necessarily have the same social value, something further discussed later. There are images from Tumblr as well as Instagram during all three time periods although there is in total considerably more material from Tumblr ($n = 28$) than from Instagram ($n = 13$). The material turned out to be somewhat evenly spread over the three periods within grade one (spring 2015, $n = 13$), grade two (autumn 2015, $n = 16$) and grade three (autumn 2016, $n = 12$).

By analyzing data, the study starts with detailed descriptions and transforms into concepts that are anchored in theory and focus on complexity rather than generalizations. (Pole & Morrison, 2003.) Informed by Pink (2013), we used Barthes (1982) theories on messages in images as an instrument for analysis. Barthes points out that there are different levels of communication in an image. In the commercial image, he exemplifies with the first form of communication is a *linguistic message*. Linguistic additions in form of short messages added to an image is common in commercial images and this is also the case for images in social media. The other two levels of communication consist of the image itself and the different types of content that it includes. Barthes (1982) calls these levels of communication the *coded iconic message* and the *non-coded iconic message*. For example, if the image contains an apple, this apple is the iconic substance of both levels. On a non-coded iconic level, the apple remains a fruit whereas on the coded iconic level, it might be interpreted as anything from a brand to a biblical reference.

The data used in this study consisted of images from social media that the focus student Maria (pseudonym) chose to interact with. The images were analyzed based on Barthes (1982) distinction between the linguistic message, the non-coded iconic message and the coded iconic message. The coded iconic message is based on the context in which the images were originally posted, Maria's statements during the interviews and the researcher's understanding of the situation in which the image was shared by Maria. In this study, we focus on the interpretation of an image Maria might make rather than make any assumptions on the original poster's intentions. Therefore, the content of hyperlinks was not taken into consideration in the analysis unless Maria herself clicked on them.

3.3. Ethical dimensions

There were several ethical dimensions to this study since the data is very personal and tightly connected to the everyday lives of the respondents and there were many steps taken to avoid that the research was perceived as an intrusion to the students' privacy. There were standard research procedures in educational science, such as the usage of faux names instead of the students' real names, and informing the students, their parents and the teachers in the school of the aim of the research project and what participation entailed.

Apart from this, there were several steps to further ensure that the respondents feel that they have control of the material. First, the students volunteered to be part of the study after being informed on what the study entailed. Secondly, rather than gaining access to the content of their phones we chose a technical solution where we mirror the screens of the mobile phones. This way we can only see what the respondents allow us to see. Further, the mirroring software is student controlled and they respondents were given the possibility to shut down the mirroring if something happened on the screen that they did not wish for us to see. Thirdly, before showing any material to an audience outside the research project, the specific material is sent to the respondents and the material is only shown with the consent of the respondent. The respondent has given her permission to use the images and quotes in this paper.

Finally, all usernames have been removed and replaced with the generic “Tumblruser” and “Instagramuser”. In order to offer the reader as authentic view as possible of the data, other information has not been edited but appear as it was on the screen of the mobile

phone as Maria was viewing it. Since they were deemed to small and of too poor quality to identify the person in them, the profile images have not been altered.

4. Analysis

Based upon the researches initial impression of the images, the statements in the interview transcripts were categorized into different themes such as comments on specific forms of social media, the audience in these and Maria's own preferences. As earlier mentioned, the images were then analyzed based upon visual ethnography (Pink, 2011, 2013) and Barthes (1982) messages on three different levels: the linguistic message, the non-coded iconic message and the coded iconic message.

4.1. The linguistic message

On the linguistic level, the text in the images was mainly analyzed based upon *language* and *layout*: whether the original poster had added any linguistic information when posting the image, if there was any text on the image or if it was an image with text only. The content of the text functioned mainly as additional information for the analysis of the coded iconic message.

4.2. The non-coded iconic message

On a non-coded iconic level, the images were inductively analyzed based upon type of image; *photo*, *painting/illustration*, *screenshot*, *GIF* or *text only*, as well as color and content. In regard to *color*, the focus was rather on the image's color palette as a whole and how it is used than on a specific hue. Color use was divided into five categories, where the first *Tumblr text*, is a very specific category since text post on Tumblr were very restricted. The user could not at the time of this study change the font nor the size or the color of the text. At this time, posts made with the text tool on Tumblr were by default black and white, whether or not that was the preference of the author.

The second category is *basic color* where there is little visible change to the images color scheme. These images appear to be unedited in regard to color and appear to be, at least close to, the original color. There are a few examples where there is text added to an image, and the image is therefore clearly edited, but there is no apparent change in the color scheme. The third category is *darkened color* where there are apparent changes made to the colors so that the image appears to be darker. This category includes changes to saturation as well as brightness. Some images are black and white or grayscale yet all are darkened in some way. This category does not include the text posts mentioned earlier since the images in this category are clearly edited and the darkened colors are a conscious choice. The fourth category is *enhanced color* and might be seen as an opposite of category three. All the images in this category are changed so that the colors appear brighter or lighter. This category also includes changes in saturation as well as brightness. The fifth and final category, *play with contrasts*, is the trickiest one to define. This category consists of images with clear changes in saturation and/or brightness so that there is a clear difference between the light and the dark elements of the image. Details from these images could be placed in category three or four, but not the image as a whole.

In order to test the categories as a tool for analysis, a co-researcher, with knowledge in visual analysis yet not connected to the research project itself, categorized all images based on color and content into the earlier mentioned categories. The usage of color was coded by the independent co-researcher and there was a dissonance between the results of the categorization ($n = 13$ of a total of $n = 41$). In general, the independent co-researcher tended to categorize more images as basic color than our initial interpretation. Although the coding focused on the distinctive features of color, the researchers' different associations of specific colors (Kress & van Leeuwen, 2006) could potentially have influenced the coding. Further, the independent co-researcher based her categorization on paper copies of the images and not the digital versions as the researchers had access to. As a result of this notion, digital images (as they are seen in the original data) were analyzed in the final categorization and the paper copies only functioned as a second-hand reference. Based on this discussion, a total of 7 images were categorized differently in the final analysis in regard to the usage of color. Out of the 7 images, 4 were categorized according to the category the co-researcher placed the image in and based on the discussion another 3 were categorized into completely new categories.

The *content* of the image was analyzed and sorted into three categories: *artefacts or phenomena*, *persons* and *landscapes*. In the first category, there are images with a focus upon an artefact or a phenomenon and they are not intended to be seen as characters capable of thoughts and/or actions. The second category is persons, where the term persons is defined in a very broad sense, since it is not strictly confined to humans only. For example, a picture of an apple would be categorized into artefacts or phenomena, but if the apple is cartoonish with facial features and seen as a character rather than an object, it is categorized into persons. Do note that only a person appearing in the image itself is taken into account, not the person sharing the image on social media. The third category contains images where the focus is on a landscape rather than on a specific object or person in the image.

There was some dissonance between the coding of the researcher of this paper and the coding of the independent co-researcher, especially in regard to the interpretation of color usage. Yet after a merging of the subcategories of landscapes, the independent researcher agreed that the empirically based categories were a functional tool for analyzing color and content in the images. With the co-researcher's categorization in mind there was a final categorization and these are the results displayed as the non-coded iconic message (5.2).

4.3. The coded iconic message

Based upon the non-coded iconic message, and with the linguistic message as an aid in addition to the researchers understanding of the context in which Maria interacted with these images, the coded iconic message function as a tool for trying to understanding what Maria intended to communicate. Based upon the inductive analysis of two earlier layers of the images, four possible desires when interacting with these images emerged.

The first, *a desire to be part of a group*, is characterized by images that interacting with can be seen as statements such as “I appreciate/understand this image” and therefore “I wish to be seen as part of the group of people who do appreciate/understand this image”. Although the second desire, *a desire to be different*, can be seen as opposite of the first desire, that is not always the case. The images in this category tend to communicate “I appreciate/understand this image” and therefore “I wish to be seen as different from mainstream culture”. However, it is also possible to think of these images as a statement of “I wish to be part of a group that are seen as different from mainstream culture” and thereby it is not a clear opposite of the first desire.

The third desire, *a desire to inspire change*, are characterized by images that, when interacted with, tend to state “I understand the problem in this image” and therefore “I wish to influence change”. The images categorized as the fourth desire, *a desire to experience*, tend to communicate “I wish I was part of this image”.

5. Findings

This section of the paper describes the findings based upon the layers of analysis of the images with additions from the interviews. All three levels together answer the first research question; what does Maria communicate through interaction with longer-lasting images (see Table 1 and Sections 5.1–5.3). Analysis on all three layers or messages are exemplified by images that describe the complexity of the material rather than easily categorized images. Finally, this section concludes with research question two; the competencies that Maria uses while interacting with longer-lasting images (see Sections 5.4–5.4.4).

5.1. The linguistic message

The language used in most of the images in the material was English ($n = 35$) and all of the images with texts in Swedish ($n = 6$), Maria's first language, were posted on Instagram. This was hardly a surprising result in the sense that the Tumblr app is in English and it is also the common tongue used on the platform. Instagram on the other hand is set in Swedish and Maria tend to use it more as a media for communication with people she has met in her analog life, such as friends and school acquaintances. The context in which Maria lives in is a highly Swedish speaking region of Finland, so the lack of Finnish ($n = 0$) is not that surprising.

The most common text placement was under the image ($n = 33$) instead of on the image ($n = 3$) or instead of an image ($n = 5$). The texts written under an image vary in length and in the use of hyperlinks and hashtags. The content of the text has not been analyzed as such but functions mainly in this study as an additional level of information in the analysis of the coded iconic message. In some of the figures visible in this paper, alterations have been made in the text in order to ensure the poster's integrity.

Text on an image, as in Fig. 1, is as stated fairly uncommon. In this image, the linguistic message from the anonymous original poster, is advocating equality and open-mindedness. In addition, there is a list of the Instagram users who have liked this image. The content of the text was not analyzed on the linguistic level and the image was placed into the categories “Text on image” and “English”. The content of the text functioned as part of the coded iconic message (see Section 5.3). The linguistic message in Fig. 2 is in comparison very sparse. It contains only the anonymous Tumblr user from whom Maria got the image, the original poster, an extra additional link to the original poster “vinstage.tumblr.com/” and the total of 206 interactions (likes, shares and comments) or notes of this image. This image is categorized into “Text by image” and “English”.

5.2. The non-coded iconic message

Among the images (see Table 2), the most dominating form were photographs ($n = 30$) and therefore it is crucial to remember the limitations of the photo as mentioned earlier, see Section 3.2. With different forms of photo editing or even manipulating it is however possible to create a new context that differs strongly from the original, but that is only clearly visible in one of the photographs in the data.

In regard to the use of color, there are examples of almost all five categories in both forms of social media. The fact that all of the six images categorized as Tumblr text are found on Tumblr is not surprising since Instagram does not offer a tool for plain text and if text is posted it is usually edited on top of an image. The other four categories are more evenly spread over the two platforms, with basic color and enhanced color as the largest categories with 13 and 12 images. For examples of these two categories, see Figs. 1 and 2. Nothing in Fig. 2 suggests that the colors seen in the photo are edited, neither do the shadows appear to be darkened and therefore it is categorized as basic color. In Fig. 1, the text on top the image makes it harder to categorize yet the orange and yellow hues in image have a high level of brightness as well as saturation and the shadows in the photo are clearly edited since they are very dark. Therefore Fig. 1 is categorized as enhanced color.

There is more images that could be considered darkened ($n = 3$), and partly darkened ($n = 4$) on Tumblr than on Instagram. Adding all the images from the categories where colors are clearly edited (darkened color, enhanced color and play with contrast) together, there is a total of 7 images on Instagram and 15 on Tumblr. This, supported by Maria's following statement (excerpt 1), show that in this data the images on Tumblr tend to be sharper, more professional and therefore tend to be more edited than the

Table 1
An overview of how the $n = 41$ images were analyzed based upon Barthes (1982) messages.

Linguistic message	Non-coded iconic message						Coded iconic message					
	Text presence			Type of image			Color			Content		
Language	n = 35	By image	n = 33	Photo	n = 30	Basic color	n = 13	Artefacts and phenomena	n = 7	Desire to be part of a group	n = 35	
English	n = 6	On image	n = 3	Illustration/painting	n = 3	Tumblr text	n = 6	Persons	n = 24	Desire to be different	n = 11	
Swedish	-	Without image	n = 5	Screen shot	n = 2	Darkened color	n = 5	Landscape	n = 20	Desire to inspire change	n = 6	
Finnish	-			GIF	n = 1	Enhanced color	n = 12			Desire to experience	n = 10	
				Text only	n = 5	Play with contrasts	n = 5					

Table 2

The images categorized based upon color and platform.

	Instagram (n = 13)	Tumblr (n = 28)	Total (n = 41)
Tumblr text	–	n = 6	n = 6 (15%)
Basic color	n = 6	n = 7	n = 13 (31%)
Darkened color	n = 2	n = 3	n = 5 (12%)
Enhanced color	n = 4	n = 8	n = 12 (30%)
Play with contrast	n = 1	n = 4	n = 5 (12%)

images on Instagram, see for example Fig. 4.

It is because you can't, like on Instagram, have blurry pictures. They have to be sharp and composed and thought through. Often with a nice short text too, but you do not have to have that. The pictures cannot be half-hearted. So only if I manage to get a really good picture, like a nature shot, then I can post it.

(Excerpt 1, Group interview 1, 2015)

Based on this data, it is possible to argue that apart from category one, plain text, Maria interacts with images of all color schemes on both platforms but is more inclined to interact with edited images on Tumblr.

When analyzing the content of the images, the images were sorted into three categories, see Table 3. The *artefacts and phenomena* (n = 7) in the data there is a range from thunder and animals to fruits and books. There are different types of *landscapes* (n = 10) and can be divided into two subcategories: *familiar locations* and *exotic locations* and the categories were defined from a rural Finnish perspective. The category exotic locations contain locations with exotic flora or architecture as well as urban areas such as big cities that are categorized exotic from a rural perspective. For example, Fig. 2 is categorized as “Landscape” and “Exotic” since the architecture is highly different from traditional Finnish architecture.

More than half of the images (n = 24) were categorized into the *person's* category. Out of a total of 25 images, 18 are of specific humans and not crowds, nonhuman characters or humanity in general. Only 3 out of 18 images of specific humans were defined as clear selfies where two of the images have the same visual content yet posted from two different accounts (see excerpt 11). Of these 18 images of specific humans, where none is elderly, 12 have one or a few females in focus and 3 have one or a few males in focus. Further 2 had both at least one female and male in focus (see Fig. 3 for example) and one (see Fig. 1) features a human in focus without a clearly specified gender. Humans as clearly defined younger females are thereby the most commonly occurring content in the material. Maria herself commented on this in the individual interview (Excerpt 2, Individual interview, 2016):

The people who use Tumblr tend to be women. There are boys who use Tumblr too, and there are images of boys as well, but then they are usually shirtless or something like that. And since there are many girls on Tumblr there are a lot of makeup and clothes and things like that.

Out of the 18 images with specific humans in focus, a total of 15 can be described as people with similar ethnicity as Maria herself, and 12 of these 15 are images of females only. For an outsider observer, it might be possible to assume that Maria is a young white female since almost a third of the data (n = 12 of a total of n = 41) consists of images with younger white females in focus. When asked if she could see herself in the images, she did not mention this, and instead focused on identifying markers such as language and personality:

I guess people might realize that I am girl based on the brighter images likes this one (referring to a bright image of a flower crown) or images with makeup or something. Unless I explicitly look for content from the Swedish speaking parts of Finland, it might be hard to see that. But I guess my personality shows in the texts and the jokes. Yeah, I guess those would be the ones that show what I think.

(Excerpt 3, Individual interview, 2016)

Maria does not mention that sharing images of persons somewhat similar to herself, based upon looks, age and gender, might give her audience an idea of her identity. She might be sharing images of this type of person without necessarily being aware of it due to the fact that her circle of friends in school consist mostly of white females her own age. However, this might also be a result of a

Table 3

Images categorized based upon content into person category.

Content categorized as persons, n = 24 (out of a total of n = 41, 58%)				
Non-specific persons n = 6 (25%) Nonhuman characters, crowds or humanity in general	Specific persons n = 18 (75%)			
	Gender		Ethnicity	
	Female only	n = 12 (67%)	Similar ethnicity as Maria	n = 15 (83%)
	Male only	n = 3 (17%)	Undefined ethnicity	n = 3 (17%)
	Female and male	n = 2 (11%)	Clearly defined with another ethnicity than Maria	–
	Undefined gender	n = 1 (5%)		

tendency in western society where the norm tends to be young, white and heterosexual.

The content of the images was coded by the independent co-researcher and there was little dissonance between the results of the categorization. There was only one different categorization between the three main categories (artefact or phenomenon, person and landscape) and a few in the subcategories. Based on the discussion that followed, the three subcategories in the category of landscapes were redefined and merged into the two presented in this text.

5.3. The coded iconic message

The coded iconic message, based upon the linguistic message as well as the non-coded iconic message, functions as a tool for understanding what Maria might have intended to communicate when interacting with an image. Based upon these two earlier layers of the images, four possible desires when interacting with these images emerged: a desire to be part of a group, a desire to be different, a desire to inspire change and a desire to experience.

Unlike the earlier messages; the linguistic and non-coded iconic message, where there is less room for different interpretations, the same image could be placed into several categories based on a coded iconic message. In order to function as a tool for analysis and to describe the complexity of the data, one image can be placed into several categories on the level of the coded iconic message since an image can communicate different possible desires at the same time.

Three examples of analysis; of Figs. 2, 3 and 4, is reported below, all three were shared on Tumblr. When sharing, and thereby interacting with, these images, Maria is communicating with her followers. Excerpts from the interviews have been added where applicable. As the individual interview was conducted in the middle of the last period of data collection, Fig. 3 was not discussed during the interview. It is however included in this study since the researcher, as well as the independent co-researcher, found the image to be representational for the data in large.

Fig. 2 is a photo of a building, and was as earlier mentioned categorized as “landscape” and “exotic” based on a rural Finnish context and as the colors in the image show no clear trace of editing, it was categorized as “basic color”. The most dominant feature of the image is a wall with pillars and arches, potentially a wall enclosing an atrium or a courtyard. The floor as well as the pillars are covered in what appears to be tiles in multiple colors yet predominantly in black, white and turquoise. As the pillars reach a certain height, they are no longer decorated with tiles but appear to be made of stone with intricate carvings and are light brown. The arches are decorated in a similar fashion, yet in a material that could potentially be wood and with a color that could be described as amber. There is no additional text as part of the images apart from what Tumblr provides us with, the Tumblr user who shared it, from whom they shared it and the number of interactions (notes) it had at the time Maria interacted with it.

I often share these kind of images (referring to Fig. 2) because they don't really bother anyone that much. They are nice and some people like them. I often share her (referring to the Tumblr user who shared Fig. 2) images because they are all right and I like her.

(Excerpt 4, Individual interview, 2016)

We state that Maria can communicate two different desires by interacting with Fig. 2: a desire to be part of a group and a desire to experience. The group Maria may intend to be part of is the active Tumblr audience, see further discussion on this topic below in relation to Fig. 3, and as a peer to the user in Marias feed who shared the image. As discussed in the excerpt above (excerpt 4), Maria



weheartit.com/entry/91398462?utm_campaign=share&utm_med...

Source: weheartit.com

3 513 notes



Fig. 3. The focus student Maria shares an image on Tumblr, screenshot from the material from year three (autumn 2016).



Fig. 4. The focus student Maria shares an image on Tumblr, screenshot from the material from year two (autumn 2015). (For interpretation of the references to color in this figure, the reader is referred to the web version of this article.)

tends to share images in order to be part of the social group of the Tumblr user who shared Fig. 2.

The image can also communicate a desire to experience. As previously discussed, the image is deemed exotic from a rural Finnish perspective as buildings decorated with tiles, apart from within bathrooms, are highly uncommon in this context. With exotic locations such as this, with the addition of the high level of the English language in the material, Maria can communicate a desire to experience something different from the rural Finnish context she was currently living in.

Fig. 3 features a grayscale image of a young couple kissing when sitting on the floor of some kind of construction made of metal and glass. Through the window it is possible to see a man walking by, so therefore one can assume that they are sitting on street level. Based on this analysis, we state that Maria could communicate two different desires with this image: a desire to be part of a group and a desire to experience. There can be several groups she desires to be part of, for one the couple of teenagers can be seen as representatives of youth culture. Secondly, this image can be seen as what Maria calls “pretty images”; images that mainly have a decorative purpose and can be used as fillers between posts of more importance in the Tumblr feed (see excerpt 4 and 5). Maria has stressed the demanding Tumblr audience in several of the interviews, so sharing these images can be seen as a desire to be part of a group of active Tumblr users.

There are these, pretty images, like of a forest, that I add to the queue so that I will be reblogging at least something. And if I haven't been active in a week or so then I reblog and queue a lot of images, so that I will post something now and something later. On the computer version of Tumblr you can see how often people are online, and if you are gone like two or three weeks people tend to stop following you.
(Excerpt 5. Individual interview, 2016)

Finally, Fig. 3 can be also seen as a desire to experience. Due to the distortion of the size of the girl's right hand, the photograph does not seem arranged but rather an authentic image of a young couple kissing. Based on the image quality and on the angle of the photo, it is reasonable to assume that the photographer is someone sitting next to the couple and that the image was taken in the spur of the moment. It is therefore possible that the photographer is indeed someone who knows the couple and decided to capture their kiss. We cannot determine the original posters intent, but by sharing this image it possible to communicate a desire to experience, perhaps young love or the companionship that is the core of the image.

The following image, Fig. 4, is featuring a young woman hiding parts of her face behind her hands and thereby framing her eyes at the same time. Compared to the spontaneity of Fig. 3, this image is clearly staged. The framing of the image is consistent with the premises of a selfie: showing the face, neck and part of one or both arms of the person in the photo (Frosh, 2015). However, there is nothing to suggest that this photo was taken by the woman herself using some form of technological aid and not another person, therefore we cannot state that this is a definite selfie. The blue, green and turquoise hues of the paint stains match the background color, and the golden paint stains are a continuation of the golden rings that decorate most of her fingers and the gold paint on the lower corner of the painting on the wall. If this image was not staged, it seems unlikely that someone would give into such as messy art process and not remove the rings in order to protect them from stains or succeed in getting so much paint on the hands and none in the face or the hair and only decorative splatter on the neck. Further, none of the different layers of paint are smudged in the sense that it appears that the woman has tried to wipe her hands clean during the process of creating art. And finally, the golden paint is deliberately the top layer of color in order to create an effect against the dark blue paint.

Fig. 4 can be categorized into communicating two possible desires: a desire to be part of a group and a desire to be different. On the surface, these two categories can be seen as opposites, yet that is not necessarily the case. This image could, as Fig. 3, be defined as a decorative image that she decides to reblog in order to continue to be part of an active group of Tumblr users. It can also be seen as a desire to be different from mainstream culture in the sense that Maria wish to position herself as a young woman who is able to appreciate art and originality over mass production, see the following excerpt (Excerpt 6, Individual interview, 2016): “*This one was very nice. Having these kind of images... Colors are always nice, and these kinds of images are kind of artistic and a little special.*” However, it is also possible that by stating to be different from mainstream culture, she might still wish to be part of a group of people who share these values. For example, one of Maria's friends from school is also a Tumblr user who uploads her own art, see Fig. 5 and excerpt 9.

5.4. Competencies

With the images and their different layers of messages as foreground and the interviews as a background, an image of four competencies is emerging: visual competency, technical competency, knowledge of social norms and knowledge of self. These competencies are overlapping to some extent and several can be active at the same time. The aim of this study is not to grade or assess her knowledge within frame of a specific competency, but rather to identify the competencies we state to be present in the data.

5.4.1. Visual competency

Visual material is a complex form of communication with several possible interpretations. Through interacting with a diverse selection of images, Maria shows *visual competency* when she is trying to comprehend the meaning behind different images. The images she interacts with are diverse in the sense of type, whether it is a photo, a screenshot or a painting, as well as the usage of color and text in addition to varying kinds of content. Maria is capable of communicating different forms of desires through her interaction with images and in order to do so, she needs visual competency in order to give the images a meaning beyond decoration. If Maria reblogs an image on Tumblr and thereby communicates a desire to be part of a group of active Tumblr users, in order to be successful, she needs to be able to identify photographs with high enough resolution and artistic value.

The usage of color is something Maria reflects upon on several occasions during the interviews, for example see excerpt 6 and the following excerpt (Excerpt 7, Individual interview, 2016): “*It is color that draws you in at first. Otherwise you just scroll by an image. But the color might... You might stop and actually see the image. It just catches your attention*”. During the interviews, she uses words such as dark, light, color, sharpness and contrast, that shows her awareness of their importance in visual communication. However, Maria does not mention composition, framing, balance or depth in regard to images during any of the interviews. This does not mean that Maria is unaware of these key visual concepts or contradict our statement that she is visually competent, yet it shows areas with visual competency she could develop.

5.4.2. Technical competency

Apart from understanding different layers of visual aspects, there are technical aspects to manage as well when trying to communicate in social media. During the interviews, see excerpt 8, it became apparent that Maria had taught herself how to use Tumblr with some help from her friends and that she later on experimented with different themes and layouts.

Researcher 1: Something I wanted to ask you is how you learned to use Tumblr? Was it through friends or by yourself or...

Maria: Mostly by myself. She (referring to a friend) was actually the one to show me the tricky parts, like how to reblog, but most of it I have had to figure out myself. To be able to change theme on your blog you need to search the web for these themes that are free and to copy six hundred long rows of theme links...

Researcher 1: Ah, so it is a link? Or is it a code?

Maria: It is a like a code that you need to copy and try to get it to work.

Researcher 1: Have you ever started to play with the code or were you already pleased with the result?

Maria: Yeah sometimes I have tried to... I have tried a little but I am not good enough so I just keep it as it is.

(Excerpt 8, Individual interview, 2016)

Based upon her fluent usage of different applications in the data, it is possible to establish that she is comfortable using technology and therefore has *technical competency*. One way to define technical competency is being able to find the tools you need in order to achieve your goal. For example, when Maria's friend posted a drawing she made herself, Maria wanted to support her by sharing it in as many ways she possibly could, see Fig. 5 and excerpt 9, and used the tools that Tumblr provided in order to do so.

Maria: She is my friend and this was an effort to make other people see her image too. First, I reblogged it immediately so that people would see it. Then I put it in the queue so that it will be reblogged in a couple of days depending on how many images I have there. Then I also scheduled it to be posted on, I think it was the 24th? This way people might see it.

Researcher 1: And you also shared it immediately?

Maria: Yeah, I both liked and shared it immediately. I liked it so that I might find it again if I want to. (Excerpt 9, Individual interview, 2016).

This example, Fig. 5, can further be seen as a way of communicating a desire to be different, or in this case a desire to be one of the few who appreciates her friend's artistic endeavors. When tapping the note function, a new page opens on Tumblr where you can see all interactions and who made them. If this image were to be a Tumblr sensation, it would be possible to identify that Maria, or her Tumblr persona, was the first person to interact with this image and thereby appreciate its exceptionality.



Fig. 5. The focus student Maria likes, reblogs, schedules a reblog and adds the image to her queue on Tumblr, screenshot from the material from year two (autumn 2015).

5.4.3. Knowledge of social norms

On several occasions, Maria has stressed that the Tumblr audience tend to be somewhat demanding, see expert 1 for example. This demand for high quality images is not a technical one set by the application, but rather a social one, where the social norm dictates certain qualities for a successful Tumblr post. Maria's awareness of these demands indicates a competency or a *knowledge of social norms*.

When interacting with images in social media, Maria is not only affected by the social norms of the current platform as earlier discussed but might be influenced by the social norms within her peer group in school as well. In the following excerpt, the researcher wishes to understand the different social settings in school and how Maria interacts with images during these.

Researcher 1: In these situations (referring to an example with Maria and her friends in the hallway), there are a lot of people around you. In the classroom material, you appear to be more in your own little bubble than during the break. Do you think that it might influence the way you use your phone?

Maria: It might. And sometimes, when you are around friends, you might say that "Oh, look at this!" and if someone says something good about it then I might reblog it after all.

Researcher 1: Even though you did not intend to do so in the first place.

Maria: Yeah.

(Excerpt 10. Individual interview, 2016).

In the data, one image is interacted with twice and thereby seen as two different images due to the fact that the image is posted from two different accounts, as Maria communicates in excerpt 11.

Maria: I do not normally like these kinds of posts but I try to show my support and to get things started, the school's profile on Instagram is not a big one. I have been part of the social media team so I try to help this way. And I felt that I couldn't like the school's image without liking her image too, since it was the exact same image.

(Excerpt 11. Individual interview, 2016)

These interactions are good examples of Maria communicating a wish to be part of a group, in this case a group of peers from her school, and being aware of the social norms dictating how one might achieve that.

5.4.4. Knowledge of self

Researcher 1: When you post something, what kind of an audience do you have in mind? Do you have someone special in mind when you post something?

Maria: Not really, maybe my friends or people my age. Most of this works for everyone, but I do try to post things that I would like to see. Because if I like it, maybe someone else will like it too.

(Excerpt 12. Individual interview, 2016).

When interacting with images in social media, a *knowledge of self* becomes apparent, see excerpt 3 for an example. As discussed in excerpt 12, although Maria is posting content she herself enjoys, she is aware that not everyone in her audience will necessarily do so. Questioning why one might choose to interact with one image and not the other is not necessary for technical purposes, yet Maria is aware of the kind of a Tumblr profile she wants to have and what kind of content that is suitable for such a profile. As we can see in excerpt 13, she also reflects upon what kind of content she prefers in regard to what other users might like.

Some of these (referring to text based images) are what I really like, but some of these images (referring to a group of images, Fig. 2 among them) I might have reblogged because they are popular... (Sometimes you share something to support a friend and sometimes I share things I know other people like. I do mix these a lot. A mix of "what I like" and "what other people like". Some sites are all about "this what I like" and some are completely focused on "this is what other people like".

(Excerpt 13. Individual interview, 2016)

Maria is aware of the fact that not all of the images she personally prefers will be as likely to be popular within the Tumblr community and it is with this insight in mind she makes decisions on what images to interact with.

6. Discussion

Based on this study, we state that it is possible to identify visual communication and explore competencies through interaction with longer-lasting images in social media. The two research questions that we asked the material were “What competencies are active while interacting with the longer-lasting images in this study?” and “What does the focus student communicate when interacting with the longer-lasting images in this study?”.

6.1. Active competencies while interacting with images

We identified four competencies that are active while interacting with images in social media: visual competency, technical competency, knowledge of social norms and knowledge of self.

There are similarities between the competencies that the focus student explores when interacting with images and the competencies or skillsets that are believed to be essential in the future. What in this study is referred to as Technical Competency is part of what Kereluik et al. (2013, p. 130) describe as *Digital and ICT Literacy*: “It can be described as the ability to effectively and thoughtfully evaluate, navigate, and construct information using a range of digital technologies and thus to function fluently in a digital world”. When considering visual material as a source of information, it is possible to state that the focus students is exploring this competency when interacting with images in social media. What in this study is referred to as Knowledge of Social Norms can fit into several skillsets: *Communication and Collaboration* as well as *Ethical and Emotional Awareness* and *Cultural Competence* (Kereluik et al., 2013).

Visual Competency and Knowledge of Self, as defined in this study, are not as easily identified in the 21st century skills. Based on the definition by Fahmy et al. (2014) of visual literacy, that is referred to as visual competency in this study, can be seen as part of the *Digital and ICT Literacy*, yet is also part of the *Problem Solving and Critical Thinking* as well as *Creativity and Innovation* subcategories.

“Adding visual literacy to the educational mix means more than teaching children to be skeptical about how toys are represented in television commercials. A visually literate adult might ask about the source of a photograph, and make choices about news sources based on transparency, reputation, and history. A visually literate citizen would recognize that a particular photograph was created to inspire a particular emotion, but then take an additional step and also consider various rational interpretations.”
(Fahmy et al., 2014, p. 90)

Based on the skillsets presented by Kereluik et al. (2013), there is little emphasis on understanding, using and valuing visual information in the current discourse on 21st century skills. The same is true for the Knowledge of Self, as it can be part of almost all of the skills earlier mentioned, since we need to have a basic understanding of who we are before we are able to know, act and value. The importance of being able to understand and value other people's point of view and be able to communicate with them are accentuated in *Collaboration and Communication* as well as *Cultural Competence* and *Ethical and Emotional Awareness*.

Two out of the four competencies described in this study are thereby not as easily identified by earlier definitions on the skillsets or competencies thought to be essential in the future. The importance of these competencies is not only stated in this study but in earlier research as well, see Fahmy et al. (2014) for one example, yet this is not reflected in the descriptions of skills that are needed in the future. Therefore, we wish to challenge the definitions of skills that are needed in the future to better reflect the importance of Visual Competency and Knowledge of Self.

6.2. Communication in interacting with images in social media

By choosing what images the focus student interacts with, the focus student controls the kind of impression she gives away to her followers on Tumblr and Instagram. Compared to the impressions we give away in face-to-face interaction (Goffman, 1959) the individual has greater control of these impressions in social media. Depending on the forum, it is possible to create a personality that is more or less connected to the persona the individual express in everyday life. As the focus students profile on Tumblr as well as Instagram is open for anyone and therefore it might be difficult for her to be in complete control of the impressions she gives away to her audience. There are ways to try to predict how an audience might react (Boyd, 2014) and the focus students shows prowess in this regard through her social competency.

Based upon the analyzed images as well as the interviews, we try to outline the persona the focus student wish to convey or communicate in social media, especially on Tumblr. The persona conveyed through the images can be described as a tech savvy, modern, non-judgmental person with a sense of humor who shares images that people are inspired by at the same time as she is possible to sustain her uniqueness (see all excerpts, but 3, 4, 6, 8, 12 and 13 in particular, and Figs. 1–5). Whether or not this online persona or identity is true to Maria's offline personality is not an issue at this point. The persona is however the one expressed through her interaction with the longer-lasting images in this data.

6.3. Implications and conclusion

The study could potentially be considered a case study with several iterations, however there are fundamental differences regarding the researchers' role in case studies compared to ethnographies: in a case study the researcher tend to be excluded from the data whereas "ethnography is more inclusive of the researcher and considers the researcher to be formative in the process" (White, Drew, and Hay, 2009, p. 21). As both the video recordings as well as the screen recordings of the students' mobile phones was captured by the researchers, we claim to be knowledgeable in the context of the focus student interacting with images.

The initial plan of this study was to analyze the images that the focus students post online for others to see in form of longer-lasting posts on social media, but there was surprisingly little material of this kind in the data. Through interviews with the focus students it became apparent that most of them do use Instagram and post their own pictures there from time to time but not necessarily as often as we might have expected them to.

Since this study is only based upon the data of one student, the competencies discussed in this text might not be the ones present in another student's engagement with images. However, based upon this study, it is possible to explore different competencies when interacting with images in social media. Another possible limitation of the study is the fact that all data was gathered in a school context and there might be material that the focus student would interact with at home that she does not interact with in school. Through the focus students open profiles on Tumblr as well as Instagram, the researchers have access to all the images she interacts with, although they are not part of this study, and it is possible to state that images used in this study are representative for the content in her profiles in general.

From an educational perspective, it is crucial to note that the competencies the focus student explored while interacting with images are not only accessible in this way, and there are of course other ways of doing so. Neither are all skillsets for the 21st century, as they are defined by Kereluik et al. (2013), possible to explore by interacting with images in social media. Yet we state that exploring different competencies when interacting with longer-lasting images on social media is possible, and something educators ought to be aware of and take into consideration when they relate to students use of social media or other informal virtual learning environments.

Visual competency and Knowledge of self, are two competencies the focus student is exploring that are not as accentuated when discussing 21st century skills. As previously mentioned, there is research stating the importance of these traits and we wish to emphasize the need to do further research on the how Visual competency and Knowledge of self can be understood in regard to education and the skills our students might need in the future.

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